

REMARKS

Applicant has thoroughly reviewed the outstanding Office Action including the Examiner's remarks and the references cited therein. The following remarks are believed to be fully responsive to the Office Action, and to render all the claims at issue patentably distinguishable over the cited references.

CLAIM REJECTIONS – 35 U.S.C. §112

Claims 1-7 stand rejected under 35 U.S.C. §112), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Minor amendments have been made to the specification and claims to overcome the Examiner's rejection and objection to the specification and claims under §112.

Applicant believes that the term "matrix" is non-limiting and its use is used to reference the material that is or will become the matrix in each of the stages of the production process. Therefore, a ceramic matrix composite may include a material that will form the ceramic matrix of the ceramic matrix composite and its use in the present application does not introduce ambiguity. Nevertheless, to speed examination and allowance of the present application, Applicant has non-narrowingly amended the claims to overcome the Examiner's rejections.

CLAIM REJECTIONS – 35 U.S.C. §103

Claims 1, 2, 5 and 6 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Galligan et al. (U.S. Patent No. 5,422,331) in view of Deshpande et al. (U.S. Patent No. 6,110,439). Claims 1, 2, 3, 4, and 6 stand rejected under 35 U.S.C.

§103(a) as being unpatentable over Rorabaugh et al. (U.S. Patent No. 5,958,583) in view of Meyer et al. (U.S. Patent No. 4,542,113). Claims 1-7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Butler et al. (U.S. Patent No. 6,497,776) in view of Meyer et al. (U.S. Patent No. 4,542,113) or Deshpande et al. (U.S. Patent No. 6,110,439).

Applicant submits that Galligan et al. should not be properly combined with Deshpande et al. As the Examiner notes, Galligan et al., in col. 6, describes a mixture that can be used as an undercoat to allow for adhesion of an over layer to a substrate. Contrary to this, Deshpande et al. teaches forming a gel or a substantially highly porous gel that will be formed into a thermal insulation. See, col. 1, lines 11-12. Therefore, it would not have been obvious by one skilled in the art to combine Galligan et al. with Deshpande et al.

Nevertheless, even if one were to combine Deshpande et al. and Galligan et al., one would not achieve each of the elements of independent Claim 1. For example, independent Claim 1 recites that sol gel includes 10 wt% to about 25 wt% of metal oxide which is mixed with alumina particles to form a mixture that includes about 40 wt% to about 70 wt% of the sol gel and about 30 wt% to about 60 wt% of the alumina particles. As the Examiner notes, Galligan et al. simply teaches mixing a sol with a selected refractory metal oxide. Even if one were to assume that the refractory metal oxide particles are similar to the alumina particles recited in independent Claim 1, Galligan et al. teaches only 50 to 80 percent by weight of the mixture may include the refractory metal oxide particles. Contrary to this, Deshpande et al. teaches only providing a wet gel generally formed with a silica, from various sources, to form a solution that can be

augmented, such as providing a base or otherwise, to form a gel. Therefore, Deshpande et al. specifically teaches not mixing the sol with a particulate to form a mixture or slurry thereof. Specifically, as the Examiner notes in Example 4, the requirements to form a material that will not gel prematurely require that no more than 12% of the sol include solids rather than a mixture of a sol in particles. Therefore, Deshpande et al. teaches away from providing additional solids into a mixture that may include the sol or a sol that includes a high percentage of solids.

In light of this, Applicant submits that Galligan et al. and Deshpande et al. should not be properly combined. Even if they are combined, Galligan et al. and Deshpande et al. do not teach each of the elements of independent Claim 1.

Applicant submits that Rorabaugh et al. should not be properly combined with Meyer et al. As disclosed in Rorabaugh et al., an alumina sol is used to form a thermal protection coating on ceramic fibers that are woven into a flexible insulation blanket for modern spacecraft. Although, alumina particles may be added to the alumina sol to form a mixture that includes about 30 wt% alumina, Rorabaugh et al. discloses providing the material onto ceramic fibers that can be woven into thermal blankets. *See*, col. 2, lines 23-32. Contrary to this, Meyer et al. discloses a material and method for forming spheroidal alumina particles according to an oil drop method. *See*, col 2., lines 22-24. Therefore, it would not have been obvious to one skilled in the art to combine the coating of Rorabaugh et al. with the material of Meyer et al. to form the mixture presently claimed in independent Claim 1. Specifically, Meyer et al. requires the formation of spheroidal alumina particles while Rorabaugh et al. is for providing a coating to ceramic fibers.

Even if one was to combine Rorabaugh et al. with Meyer et. al., one would not achieve each of the elements recited in independent Claim 1. As stated by the Examiner, Rorabaugh et al. does not disclose providing a selected solids content in a sol. Moreover, Meyer et al. discloses providing a content greater than that presently recited in independent Claim 1. See, col. 3, lines 1-2. In addition, Meyer et al. requires that the alumina sol includes a solids content of more than 20-40 wt% alumina to form the spheroidal particles so that they have various characteristics such as high strength or high pore volume. See, col. 2, lines 25-27. Therefore, it would not have obvious to one skilled in the art to combine Rorabaugh et al. with Meyer et al. to achieve the combination of independent Claim 1. Additionally, Rorabaugh et al. and Meyer et al. disclose distinct materials that are not taught to be combined. Moreover, Meyer et al. requires a substantially high solids content to achieve selected results of the spheroidal particles while Rorabaugh et al. discloses a material to be coated onto ceramic fibers.

Therefore, Applicant submits that independent Claim 1 is not obvious and in condition for allowance in light of Rorabaugh et al. and Meyer et al. and each of the claims dependent directly or indirectly thereon.

Applicant submits that Butler et al. is not proper prior art in light of the submission and declaration provided with this response. Applicant submits that the included declaration is evidence and proof that the claims of the present application were invented and reduced to practice prior to the filing of the Butler et al. reference. Therefore, Applicant submits that it is improper to combine Butler et al. with Meyer et al. and Deshpande et al.

In addition, as stated by the Examiner and discussed above, Deshpande et al. and Meyer et al. do not disclose or fairly render obvious each of the elements of independent Claim 1.

Therefore, Applicant submits that each of the rejections provided by the Examiner have been overcome or rendered moot with this response. In addition, Applicant submits that new claims 23 and 24 are also allowable in light of the art cited by the Examiner. Therefore, Applicant requests that the Examiner withdraw each of the rejections and allow independent Claim 1 and Claims 2-7 and 23 and 24, dependent either directly or indirectly from independent Claim 1.

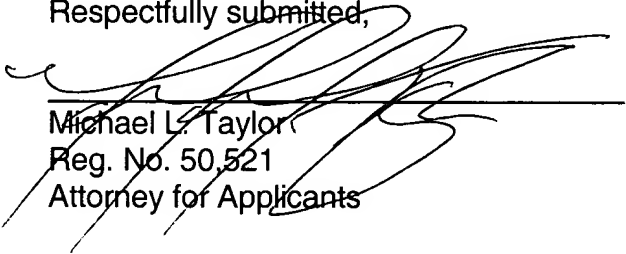
CONCLUSION

In light of the above amendments and remarks, Applicant submits that the pending claim is currently presented in a condition for allowance. Accordingly, Applicant respectfully requests the Examiner to pass the case to issue at her earliest possible convenience.

Applicant has thoroughly reviewed the art cited but not relied upon by the Examiner. Applicant has concluded that these references do not affect the patentability of the claims as currently presented.

If the Examiner has any questions regarding the present amendment, she should not hesitate to contact the undersigned at (248) 641-1600.

Respectfully submitted,



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